

IN THE CLAIMS

Please amend the claims as follows.

For the Examiner's convenience, a list of all claims is included below.

1. - 22. (Canceled)

23. (Currently Amended) A system comprising:

a substrate comprising an electrical device;

a metallization pad disposed over the substrate;

a ball-limiting metallurgy disposed over the metallization pad, the ball-limiting metallurgy comprising:

a metal adhesion first layer disposed above and on the metallization pad;

a metal second layer that includes copper disposed above and on the metal adhesion first layer;

a metal third layer that includes nickel-vanadium disposed above and on the metal second layer;

an electrically conductive bump disposed above and on the metal third layer;

wherein at least one of the metal second layer and the metal third layer is compressively stressed; and

a flip-chip disposed over the ball-limiting metallurgy.

24. (Previously Presented) A system comprising:

a substrate comprising an electrical device;

a metallization pad disposed over the substrate;

a ball-limiting metallurgy disposed over the metallization pad, the ball-limiting metallurgy comprising:

a metal adhesion first layer disposed above and on the metallization pad;
a metal second layer disposed above and on the metal adhesion first layer;
a metal third layer disposed above and on the metal second layer;
an electrically conductive bump disposed above and on the metal third

layer;

wherein at least one of the metal second layer and the metal third layer comprises copper; and

a flip-chip disposed over the ball-limiting metallurgy, wherein the flip-chip comprises a solder having a composition of about Sn37Pb, and wherein the electrically conductive bump comprises a solder having a composition of about Sn97Pb.

25. (Original) The system according to claim 23, wherein the electrical device comprises a chip-scale package.

26. (Original) The system according to claim 23, wherein the flip-chip comprises a chip-scale package.

27. (Original) The system according to claim 23, wherein the electrical device comprises a chip-scale package and wherein the flip-chip comprises a chip-scale package.

28. (Original) The system according to claim 23, further comprising:

an intermetallic zone that substantially isolates the metal third layer from the electrically conductive bump.

29. (Previously Presented) The system according to claim 23, wherein the metal adhesion first layer includes a Ti composition, and wherein the Ti composition has a thickness in a range from about 500Å to about 4,000 Å .

30. (Previously Presented) The system according to claim 23, wherein the metal second layer includes a NiV composition, and wherein the NiV composition has a thickness in a range from about 500Å to about 4,000Å, and wherein the metal third layer has a thickness in a range from about 1,000Å to about 5,000Å.

31. (Previously Presented) The system according to claim 23, wherein the metal third layer includes a NiV composition over the metal second layer, wherein the NiV composition has a thickness in a range from about 1,000Å to about 5,000Å, and wherein the metal second layer has thickness in a range from about 1,000Å to about 5,000Å .

32. (Previously Presented) The system according to claim 23, wherein the metal third layer includes a copper stud over the metal second layer, wherein the copper stud has a thickness in a range from about 5 micrometers to about 15 micrometers, and wherein the metal second layer has a thickness in a range from about 1,000Å to about 5,000Å.

33. (Currently Amended) A system comprising:
a substrate comprising an electrical device;
a metallization pad disposed over the substrate;

a ball-limiting metallurgy disposed over the metallization pad, the ball-limiting metallurgy comprising:

a metal adhesion first layer disposed above and on the metallization pad;

a metal second layer of copper disposed above and on the metal adhesion first layer;

~~a metal third layer~~ copper stud disposed above and on the metal second layer, ~~wherein the metal third layer comprises a copper stud;~~

an electrically conductive bump disposed above and on the ~~metal third layer~~ copper stud; and

a flip-chip disposed over the ball-limiting metallurgy.

34. (Previously Presented) The system according to claim 33, wherein the copper stud has a thickness in a range from about 5 micrometers to about 15 micrometers, and wherein the metal second layer has a thickness in a range from about 1,000Å to about 5,000Å.